

Composite FlexViewer by Frank Roberts - April 30, 2010

The following is a brief tutorial on how to implement the Composite ArcGIS Server FlexViewer. The FlexViewer described below has several modifications from the out-of-the-box FlexViewer as provided by ESRI at **resources.esri.com**. The viewer provided here has been modified in the following ways:

- a. The deployment method allows for one central location for the compiled Flash source files and separate folders for just the configuration files and main splash page html file, thus allowing ease of update when you may have multiple viewers on one web server.
- b. Addition of most of the available widgets from **resource.esri.com**.
- c. Addition of a print widget developed by Frank Roberts that can create a **pdf** file.
- d. Addition of a hyperlink widget developed by Frank Roberts.
- e. Slight modification to the icons used in the overall application, such as logo, and close window.
- f. Addition of user help documentation developed by Jen Grew.
- g. Addition of the ability to clear the flash cache in the help menu.
- h. Addition of the ability to pass the viewer an X and Y coordinate in the URL so the application will zoom to the extent. E.g. **<http://gis.cdatribe-nsn.gov/nativenames/NativeNamesMap/index.html?X=-116.898207729&Y=46.9235319624>**
- i. The default map has the panning buttons turned on.

How to deploy the Composite FlexViewer

1) Copy the **FlexViewerLatestBuild** folder to a location at the root of your web server or optionally, put the folder somewhere else on your web server and make it a **virtual folder** in IIS (**Internet Information Services**) so it appears at the root of your web server. This will be the primary home for all the compiled Flash source files for all future web mapping applications. Once you have decided the location of this folder on the server, you will need to put the correct **web path** to this folder in both the **index.html** and **config.xml** files found in the **PointToSource** folder described below (i.e. search and replace for all occurrences of "**gis.cdatribe-nsn.gov/ FlexViewerLatestBuild** " and replaced them with your **web path** for **FlexViewerLatestBuild** in both files).

2) Copy the existing **PointToSource** folder to the desired location on the server. At the Coeur d'Alene Tribe this location is **f:\data\FlashMaps**. At the Coeur d'Alene Tribe, **f:\data\FlashMaps** is set as a **virtual folder** in IIS so it appears as **FlashMaps** at the root of the web server. All web maps are then found within the **FlashMaps** folder.

3) Rename the copied folder (**PointToSource**) to what you want it to be seen as by the web server. For example, if it is an interactive map for the roads department, rename **PointToSource** to **RoadsDeptMap**.

4) In the newly renamed folder from the previous step, open up the **config.xml** file using a text editor of your choice and do the following tasks:

- a) Find the **<title>** and **<subtitle>** XML tag and give it the appropriate title and subtitle. The titles will be displayed on the main menu bar of the viewer.
- b) Optionally, if you wish to display a different logo on the map other than the Coeur d'Alene Tribal Seal, you may wish to put in a pointer to your own logo file. This is done by editing the pointer in the **<logo>** XML tag. If you wish to use ESRI's default square globe logo simply change the name to **logo.png**, since the original logo image is still in the folder, **FlexViewerLatestBuild\com\esri\solutions\flexviewer\assets\images**. If you use your own logo, it should be an image file with a transparent background.
- c) Use the replace function of your text editor to replace all occurrences of **http://gis.cdatribe-nsn.gov/FlexViewerLatestBuild** with the new path to your server's location of **FlexViewerLatestBuild**. This will ensure that when future versions of the **FlexViewer** come out, you will only need to update one folder (i.e. **FlexViewerLatestBuild**).
- d) Find the **<map >** XML tag and enter the appropriate bounding extent in decimal degrees for the **initialExtent** value. Do the same for the **fullExtent** value. The easiest way to get these values is to navigate, via a URL address, to your **ArcGIS Server** rest services folder. An example link would look something like this: <http://maps.insideidaho.org/ArcGIS/rest/services/> or <http://gis.shoalwaterbay-nsn.gov/ArcGIS/rest/services/>. Once connected, click on the appropriate service and you will see coordinates for extents. Alternatively, you can go to a web map I have created that allows you to zoom to the location and then use the "Copy extent text to clipboard" button, to get the coordinates. The URL for this map is: <http://gis.cdatribe-nsn.gov/flashmaps/extentmap/>
- e) Find the **<livemaps>** XML tag. Enter the URL for the link to your **ArcGIS Server** map service and also give it the appropriate label value that describes it.
- f) Widget visibility can be set in three levels by using the "preload" variable. Preload set to "true", will have the widget fully maximized at the start of the session. Preload set to "minimized" will have the widget up in the starting session, but minimized. Lastly, Preload set to "false" will result in the widget not being in the browser at the starting session, though you will still be able to access it via the menu interface.
- g) Lastly, use the XML comment character strings (e.g. **<!-- -->**) to add or remove the widgets or menus you do or do not want to see in the mapping interface. For example if you don't want to see the **Hyperlink** tool, then add a **<!--** in front of the hyperlink widget and then add a **-->** following the **Hyperlink** widget. This will then remove this tool from the menu.

Widgets

The Composite flexviewer has a multitude of Widgets bundled with it. Most of these have been written various developers and made available at "resources.esri.com". As new versions of the widget become available, attempts are made to keep the composite viewer widgets in step with these releases. The code base for the composite viewer has then deviated from the original flexviewer to incorporate the needed changes for these widgets. Widgets currently available in the composite viewer are as identified in the table below.

| Widget Name | Developer | Data of release used |
|------------------|---------------|----------------------|
| LiveLayer | | |
| Identify Widget | | |
| Hyperlink Widget | Frank Roberts | |
| LiveMapsWidget3 | | |
| PrintWidgetPdf | Frank Roberts | |

1) One optional widget you may want to implement is the **LiveLayer** widget. This widget works similarly to the **Identify** widget, but it also allows you to bring back a picture of a location if you have that image file's path information in your dataset. This widget can be implemented by the following steps:

- First uncomment the **LiveLayer** widget in the **config.xml** file as identified in **step 4.f** above.
- Open **LiveLayerWidget.xml** in the **widgets** folder using a text editor.
- Edit the **<Layer>** XML tag so it points to the **ArcGIS Server** map service and layer you wish to pull information from. For example: **http://gis.cdatribe-nsn.gov/CDATribeArcGISServerExternal/rest/services/EPA_FRS_web/MapServer/0**.
- Edit the **<fields>** XML values to identify which attributes to display on the widget once a feature is selected. You will need to list all the fields you desire to pull back to the widget, so included the fields for the **<titlefield>** and **<linkfield>** XML tags described below.
- Edit the **<titlefield>** value to pick which field from the dataset to return for the title on the widget once a feature is selected.
- Edit the **<linkfield>** if you wish the widget to be populated with either a picture or a link to a URL. If you provide the name of a field that is populated with a URL to an image on your web server, the widget will display that picture when you mouse over the point when the widget is active. If you populate the value of the **<linkfield>** with an item from your dataset that has the URL to another web site, the widget will portray a button that will then allow the user to click on it and launch a new web browser window with the web page that is found at that URL.
- For more information on this tool go to **resource.esri.com** and look for information about the **FlexViewer LiveLayer Widget**.

2) Another widget you may wish to implement is the **Identify Widget**. This version of the composite viewer has two Identify Widgets (**IdentifyWidget**, and **IdentifyWidget2**). The one covered here is will be

IdentifyWidget2. This code builds on the preexisting **Identify Widget** code that was enhanced by Robert Scheitlin with a few slight modifications by Frank Roberts. To use this widget follow the steps below:

- a) First, uncomment or add the **IdentifyWidget2** widget in the **config.xml** file as identified in **step 4.f** above.
- b) Open **IdentifyWidget2.xml** in the **widgets** folder using a text editor.
- c) Edit the **<layer>** XML tag so that it points to the layer you want to identify. This will be the name of the layer as it is defined in the **ArcGIS Server** map service (e.g. "**Lake Encroachments**"). You can get this information by browsing the **ArcGIS** map service as identified in **step 4.d** above and clicking on the map service's link. Then look under the **Layers** section of the web page. Optionally this tag can be populated with the word "**any**." If this is done the widget will return all fields for a given feature that is clicked on and you can skip **step d** below.
- d) Next edit the **<fields>** XML tag. This tag is populated with comma delimited list of the attribute names (e.g. "**Encroachment ID, Photo ID**"). If you do this, only the fields identified will be displayed in the **Identify** window. For this to work correctly, you must identify the layer name as described in **step c** above. In the event the field has an alias, you will need to use the alias name for the field. This should be the attribute name that shows up via the services rest URL as described above.
- e) Optionally, you can set the **<zoomscale>** value in the XML file. By changing the value for this tag, you set the scale that the map will zoom into when you single click on the return values from a feature that is displayed in the widget.
- f) If you have problems with the **Identify** widget not returning any values, make sure the **ArcGIS Server** map service is providing data in decimal degrees. You can resolve this by opening the **mxr** file and changing the general display to **GCS_WGS_1984**. Next, you will have to reload your **mxr** in **ArcGIS Server**. Lastly, you will need to clear the **Rest cache** or stop and restart **IIS** if you are running **Windows Server 2008**. If you do not do this, the change in coordinate system will not show up at the rest endpoint.

3) Another widget you may wish to implement is the **Hyperlink Widget**. The **Hyperlink Widget** spawns a new browser window from a URL found in the dataset. This **Hyperlink Widget** in the composite viewer is a modification of Robert Scheitlin's **IdentifyWidget**. To use this widget follow the steps below:

- a) First uncomment or add the **Hyperlinkwidget** in the **config.xml** file as identified in **step 4.f** above.
- b) Open **Hyperlink.xml** in the **WidgetXML** folder using a text editor.
- c) Edit the **<layer>** XML tag so is set to "**any**." This is the default option. This will then allow hyperlink to occur on any layer in the map. Optionally you can change the **<layer>** XML tag to the name of the layer you wish to identify on (e.g. "**Lake Encroachments**"). You can get this information by browsing the **ArcGIS Server** service as identified in **step 4.d** above and browse to the map service and look under the **Layers** section of the web page. If this tag is set to the word "**any**" you can skip **step d** below.
- d) Next edit the **<fields>** XML tag. You can either leave this tag blank, which is the default, or populate it with a comma delimited list of the attribute names (e.g. "**Encroachment ID, Photo**

ID,URL"). If you do this, only the fields identified will be displayed in the hyperlink window. For this to work correctly, you must identify **<layer>** name as described in **step c** above. In the event that the field has an alias, you will need to use that alias name for the field. This should be the attribute name that shows up via the **ArcGIS Server** map services rest URL as described above. Also, you will need to have a field named **URL**, so the hyperlink can occur at that URL.

- e) Optionally, you can set the **<zoomscale>** value in the XML file. By changing the value for this tag, you set the scale that the map will zoom into when you single click on the return values from a feature that is displayed in the widget.
- f) If you have problems with the **Identify** widget not returning any values, make sure that the service is providing data in decimal degrees. You can resolve this by opening the **mx**d and changing the general display to **GSC_WGS_1984**. If you do need to make modification to your **mx**d such as changing the projection, you will have to reload your **mx**d in **ArcGIS Server**. Lastly, you will need to clear the **Rest cache** or stop and restart **IIS** if you are running **Windows Server 2008**. If you do not do this, the change in coordinate system will not show up at the rest endpoint.

4) Yet another widget that can be optionally activated is the **LiveMapsWidget3**. The thing that sets this widget apart from the original is that it has the additional function of allowing the user to see a graphical legend. In order to use this widget you must also have a compiled the ASP.NET code for the restLegend web service. The new ASP.NET service can be placed in a directory on your web server, this directly is typically called "restLegend". The source for this ASP.NET project can be found at the following url: <http://forums.esri.com/Attachments/36486.zip>

- a) First uncomment or add the **LiveMapsWidget3** in the **config.xml** file as identified in **step 4.f** above.
- b) Next open the **LiveMapsWidget3.xml** (it can be found in WidgetXML directory). Then edit the following tags in this file:
- c) Edit the contents of the **<servicename>** tag and enter the name given to it in the config.xml for the label of the service. See Example highlighted below:
`<mapservice label="Encroachments" type="dynamic" visible="true" alpha="1">http://...`
- d) Then edit the **<servicesoapurl>** tag, to identify the SOAP url of the service. See example below:
`http://10.1.1.6/arcgis/services/Encroachment3/MapServer`
- e) Lastly edit the **<restlegendlocation>** tag, to point to the ASP.NET web service on your server. Eg:
`http://gis.cdatribe-nsn.gov/restLegend/restLegend.asmx?wsdl`

5) The **PrintWidgetPdf** is a widget that allows the end user to print PDF files. In order to use this widget you must have a the .NET web application on your web server called "CreatePDF".

- a) First uncomment or add the **PrintWidgetPdf** in your config.xml file as identified in **step 4.f** above.
- b) Then open the **PrintWidgetPdf.xml** file (it can be found in WidgetXML directory). Then edit the following tags in this file:
- c) Edit both the values found in the **<title>** and **<subtitle>** tag to reflect what you want on the title of the map. The end user will be able to change these in the widget, but you still may want to set a default value.

- d) In the text following the logo <logo> tag, add a url to the location of the logo you wish to have in the upper right hand corner of the map. You may want to add this logo to the location I have placed mine in the "/FlexViewerLatestBuild/com/esri/solutions/flexviewer/assets/images/" directory.
- e) Populate the text after the <disclaimer> tag with your organization's disclaimer.
- f) Lastly, edit the text following the <urlpdfpage> tag to reflect your location to CreatePDF on your server. For Example: <http://gis.cdatribe-nsn.gov/CreatePDF/default.aspx>

Error Checking

We have noticed some discrepancies between the **ArcGIS Server map service** (published **mx**d document) and changes to the **config.xml** configuration file for the **flex viewer**. Specifically, edits to the configuration file were not immediately displayed in the web application. After saving your edits, if the refresh button in your web browser does not update your changes, try closing and then opening a new web browser to load your page, test multiple web browsers (Internet Explorer and Firefox) and clearing your browser's cache. Once we did one or more of these steps, the **ArcGIS Server map service (mx**d document) would display correctly in multiple web browsers.

When deleting temporary files in Internet Explorer 7 or 8, the files are deleted from these folders:

C:\Documents and Settings\frank\Local Settings\Temporary Internet Files (Windows XP) or
C:\Users\frank\AppData\Roaming\Microsoft\Internet Explorer\UserData (Windows Vista, Windows 7).